

As enclosed to IPRP

1. A process for preparing (meth)acrylic acid copolymers, which comprises the following process steps:

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(1) free-radical polymerization of (meth)acrylic acid, a polymer I resulting, and
(2) amidation of the polymer I resulting from process step (1) by reaction with at least one aminoalkanesulfonic acid, wherein the molar ratio of monomers in polymer I to aminoalkanesulfonic acid is from 15:1 to 2:1 and the (meth)acrylic acid copolymer comprises

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(a) from 30 to 95% by weight of a poly(meth)acrylic acid basic framework,

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(b) from 5 to 70% by weight of amide units based on aminoalkylsulfonic acids,

the total weight of the units in the sulfonated polymer being 100% by weight and all weights being based on the sulfonated polymer.

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2. A process according to claim 1, wherein process step (1) is carried out at temperatures of from 100 to 200°C.

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3. A process according to claim 1 or 2, wherein process step (2) is carried out at temperatures from 140 to 250°C.

4. A (meth)acrylic acid copolymer which is obtainable by a process according to one of claims 1 to 3.

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5. A (meth)acrylic acid copolymer according to claim 4, wherein the weight-average molecular weight of the sulfonated polymer is from 1000 to 20 000 g/mol.

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6. A process for stabilizing phosphates and/or phosphonates and/or zinc ions in aqueous systems, which comprises adding to the system a polymer according to one of claims 4 or 5.

7. The use of (meth)acrylic acid copolymers according to one of claims 4 or 5 for water treatment, scale inhibition in petroleum production and/or corrosion inhibition in aqueous systems.

8. A formulation for water treatment, scale inhibition in petroleum production and/or corrosion inhibition, comprising (meth)acrylic acid copolymers according to one of claims 4 or 5.